

## SUBJECT INDEX

- A64077 422  
 AA861 421  
 Acyclovir 318  
 Adenosine-3', 5'-monophosphate  
   mediated secretions, cystic fibrosis 42, 43  
   role in inflammation 434  
   second messenger 31, 434  
 Adenosine triphosphatases, ion-transporting 51  
 Adenosine triphosphate-driven transport  
   protein 49  
 Adenosine triphosphate, oxidant effects on  
   cellular levels 139  
 Adenylate cyclase, signal transduction 33  
 Adhesion molecules, rheumatoid arthritis 354,  
   357, 413  
 Adjuvant arthritis 417  
 $\beta$ -Adrenergic agonists, epithelial cell  
   secretion 36  
 $\beta$ -Adrenergic sensitivity, cystic fibrosis 41, 42,  
   56  
 AHP, cpd4 408, 409  
 AIDS 245  
   AZT 316  
   CD4 in pathogenesis 273  
   chemotherapy 313-328  
   endothelial cell involvement 305  
   immunomodulation 322  
   Kaposi's sarcoma 297, 303  
   passive immunisation 322  
   soluble CD4 320  
 Airways, cystic fibrosis 18  
 AL721 323  
 Amiloride, cystic fibrosis treatment 63  
 Ampligen 322  
 Angiogenesis, mechanisms and regulation 300  
 Antigen-presenting cell  
   AIDS 273, 284  
   T cell interaction 412, 413  
 Anti-inflammatory drugs 397  
 Antioxidant drugs, effect on lymphocyte  
   function 161  
 AP-1 441  
   induction by interleukin-1 442  
 Arachidonic acid  
   activation of lymphocyte NADPH  
     oxidase 89  
   control of 433  
   metabolism and inflammatory mediators 420  
 Arthritis  
   generation of free radicals 93  
   molecular basis of therapy 395-473  
 Aspartic proteinases, HIV 329  
 Aspirin 397  
 Atherosclerosis, free radicals and protein  
   damage 124, 126  
 Autoimmune disease 400  
 3'-Azido,3'-deoxythymidine 313, 315  
   pharmacokinetics and action 316  
   resistance 318  
   toxicity 317  
 Azone, skin penetration enhancer 222, 225,  
   226, 230  
  
 BB16 427  
 B cells, rheumatoid arthritis 418  
 Becker muscular dystrophy 181, 183  
   molecular diagnostics 185  
 Bicarbonate secretion by epithelial cells 24  
*p*-Bromophenacylbromide 431  
 Buprenorphine hydrochloride, iontophoresis  
   through skin 220  
  
 Calcitonin gene-related peptide, in synovial  
   joints 360, 361  
 Calcium  
   epithelial cell secretion 36  
   oxidant effects on cellular homeostasis 138  
   second messenger 34  
 Cartilage degradation 423  
 CD4 255  
   endocytosis 269  
   epitopes 257  
   function and signalling 272  
   gp120 interaction 270, 315, 320  
   HIV infection 268, 304  
   H<sub>2</sub>O<sub>2</sub>-induced alterations 155  
   pathogenesis of AIDS 273  
   rheumatoid arthritis 417, 419  
   soluble 271, 320  
   structure and function 256  
 CD7 419  
 CD25, effect of U75412E on expression  
   of 163, 165  
 CD28, rheumatoid arthritis 415  
 Cell culture, free radical-induced DNA  
   damage 97  
 Cell surface receptors, viruses 268  
 Cerulenin, inhibition of HIV proteinase 331  
 CGP 28238 408  
 Chemotherapy, HIV infection 313-328  
 Chloride  
   permeability in cystic fibrosis 40, 42, 44  
   reabsorption 26  
   secretion by epithelial cells 19, 30  
 Chloride channel, fluid secretion 22, 30  
 Cholera 30  
 Chondroitin sulphate, rheumatoid arthritis 365  
 Collagen arthritis 417  
 Collagenase  
   gene expression 440  
   inhibitors 426  
   rheumatoid arthritis 370, 423, 425

- Collagens, rheumatoid arthritis 363  
 Computer graphics molecular modelling 285  
 Corticosteroids, arthritis 347, 445  
 CP-66,248 406  
 Cyclic nucleotide phosphodiesterases, role in inflammation 434  
 Cyclophilin 416  
 Cyclosporin A 415  
 Cysteamine, protector of free radical damage 133  
 Cystic fibrosis 1-81  
   CFTR 48  
   clinical features 5  
   epithelia affected 17  
   epithelial cell regulation 30, 40  
   gene identification 8  
   gene therapy 62  
   genetic screening 15  
   history 5  
   management of 61  
   models 56  
 Cystic fibrosis gene  
   cystic fibrosis models 56  
   protein structure 47  
   treatment of cystic fibrosis 62  
 Cystic fibrosis transmembrane conductance regulator protein 47, 57  
 Cytokines  
   endothelial cell activation 172, 299, 301  
   immunomodulation 322  
   rheumatoid arthritis 348, 401  
   stimulation of superoxide production by lymphocytes 88  
 Cytolysis, free radical generation 125  
 Cytoskeleton, effect of oxidants 139  
 Cytotoxic T cells, rheumatoid arthritis 418
- Deoxyribonucleic acid  
   diagnosis of muscular dystrophies 185  
   free radical-induced damage 95, 129, 376  
   oxidant-induced damage 141  
   rheumatoid arthritis 376  
 Dermis 198  
   drug delivery 212  
 Dextran sulphate, antiviral activity 321  
 Diacylglycerol kinase 434  
 2',3'-Dideoxycytidine 319  
 2',3'-Dideoxyinosine 315, 318, 320  
 Dimethylsulphoxide, skin penetration enhancer 222, 227  
 Diphenylene iodonium, effect on lymphocyte function 162  
 Disease modifying anti-rheumatic agents 398  
 Duchenne muscular dystrophy 175-194  
   dystrophin-deficiency 179  
   dystrophin gene abnormalities 179  
   molecular diagnostics 185  
 Dystrophin gene 177  
   abnormalities 179  
 Dystrophin protein 177  
   abnormalities 181
- E-5090 406  
 E-5110 406  
 Effector cells, rheumatoid arthritis 418  
 Electrolytes  
   abnormalities in cystic fibrosis epithelial cells 40  
   reabsorption 25  
   secretion 19, 30  
 ELISA  
   free radical-induced DNA damage 95  
   reactivity of IgG with protein A 111  
 Endocytosis, HIV 268  
 Endothelial cell adhesion molecule-1 171, 172, 357  
 Endothelial cells  
   angiogenesis 300  
   HIV interactions 304, 305  
   neutrophil induced injury 171  
   role in Kaposi's sarcoma 299, 302  
 Energy system, oxidant effects 139  
 Epidermal growth factor, rheumatoid arthritis 439  
 Epidermis 197  
   drug transport 201  
   permeation pharmacokinetics 212  
 Epithelia affected in cystic fibrosis 17  
 Epithelial cells  
   cultured, cystic fibrosis models 58  
   regulation 30  
   regulation in cystic fibrosis 40  
   relation of cystic fibrosis gene to dysfunction 47  
 Exocrine glands  
   cystic fibrosis 17  
   regulation 30  
 Exocytosis, secretory proteins 26, 28, 30
- FVIIIIRAg 302  
 Fibroblast growth factors  
   angiogenesis 300  
   rheumatoid arthritis 348, 352  
 Fibronectin, rheumatoid arthritis 356, 357, 366  
 Flow cytometry, free radical damage within single cells 129  
 Fluid secretion by epithelial cells 19, 30  
 $\alpha$ -Fluoroketones 336  
 5-Fluorouracil, terpene penetration enhancers 223, 225, 229, 232  
 Foscarnet 320  
 Free radicals  
   induced DNA damage 95, 129  
   in inflammation 94, 101  
   protein damage and role in immune response 121  
   rheumatoid arthritis 372  
 Free radical scavengers, effect on nucleoid forward scatter response 133
- Gelatinase 370, 423, 425  
 Gender, dystrophin abnormalities 183

- Gene expression, therapeutic intervention in  
rheumatoid arthritis 444
- Gene sequence identification, cystic fibrosis 12
- Gene therapy, cystic fibrosis 62
- Genetic counseling, muscular dystrophies 185
- Genetic screening, cystic fibrosis 15
- Glucocorticoid receptor 445
- Glutathione-redox system, effect of  
oxidants 137
- Glycolysis, effects of oxidants 139
- Glycoproteins, rheumatoid arthritis 365
- Glycoprotein gp41 255
- Glycoprotein gp120 257  
carboxy terminus 283-296  
CD4 interaction 270, 320
- Glycosaminoglycans, rheumatoid arthritis 365
- G-proteins 32  
role in rheumatoid arthritis 428
- Graft versus host disease 274, 305
- Granulocyte-monocyte stimulating factor 301
- Granulocytic leukemia,  
8-hydroxydeoxyguanosine in urine 98
- Growth factors, rheumatoid arthritis 348, 352,  
439
- Guanosine-3',5'-monophosphate, second  
messenger 32
- Guanylate cyclase, signal transduction 33
- H7 437
- H261 333
- Hair follicles 198
- Haloperidol, antiviral action 332
- Heat aggregated immunoglobulin, stimulation of  
superoxide generation by lymphocytes 89
- Heparan sulphate proteoglycans, rheumatoid  
arthritis 365
- Heparin, angiogenic effect 300
- HIV 245  
CD4-gp120 interaction 271, 315, 320  
CD4 receptor 256  
chemotherapy 313-328  
endothelial cell interactions 304  
gp120 carboxyterminus 283-296  
proteinase inhibitors 329-340  
relationship to SIVs 247  
therapeutic inhibition of cell entry 271  
tropism 267-282  
vascular endothelium 305
- HPLC, free radical-induced DNA damage 98
- HTLV-I 268
- Hyaluronate, rheumatoid arthritis 365
- Hydrogen peroxide  
endothelial cell killing by neutrophils 171  
effect on lymphocyte receptor function 149  
mechanisms of cell injury 137
- Hydroperoxides, protein damage 126
- Hydroxamic acid derivatives, lipoxigenase  
inhibitors 422
- 8-Hydroxydeoxyguanosine, HPLC, free  
radical-induced DNA damage 98
- Hydroxyethylene isosteres, antiviral  
activity 333
- Hydroxyl radical, DNA damage 143
- Hypochlorous acid, injury to cells 144
- Hypothalamic-pituitary-adrenal axis,  
arthritis 347
- Hypoxic-reperfusion injury, rheumatoid  
joints 374
- Immune complex vasculitis 169
- Immune response, role of free radical damage  
to proteins 121
- Immunodeficiency viruses 247-252
- Immunoglobulin G  
effect of antioxidants on synthesis of 163,  
164  
effect of reactive oxygen species on  
function 107  
synovial fluid 376
- Immunomodulation 322
- Immunophilins 415
- Immunoregulation, hydrogen peroxide and  
lymphocyte function 149
- Indomethacin 397
- Inflammation, role of free radicals 94, 101
- Inflammatory mediators 420
- Inflammatory synovitis 344, 397
- Inositol phosphates, intracellular  $Ca^{2+}$  34
- Integrins 355  
rheumatoid arthritis 357
- Intercellular adhesion molecule-1 299, 356  
rheumatoid arthritis 357
- Interferon $\alpha$ , immunomodulation, AIDS 322
- Interferony  
AIDS 306  
rheumatoid arthritis 403, 413
- Interleukin-1  
AP-1 induction 442  
effect on endothelial cells 172  
inhibitors of function 408, 409  
metalloproteinase expression 370  
production in HIV-infected patients 306  
rheumatoid arthritis 348, 401-411
- Interleukin-1 $\beta$ , stimulation of superoxide  
production by lymphocytes 89
- Interleukin-1 inhibitors 350
- Interleukin-1 receptor, antagonists 406
- Interleukin-2, production by T cells in  
rheumatoid arthritis 150
- Interleukin-2 gene expression 443
- Interleukin-2 receptor, effect of U75412E on  
expression 163, 165
- Interleukin-6  
angiogenesis 301  
rheumatoid arthritis 350, 402
- Interleukin-6 gene expression 440, 442
- Interleukin-8, rheumatoid arthritis 351
- Intestinal tract, cystic fibrosis 18  
ion transport 43
- Iontophoresis 218
- Iron, free radical damage to proteins 122
- IX207887 406

- K252a 438  
 Kaposi's sarcoma  
   AIDS 303  
     clinical features 297  
     histogenesis 302  
     role of endothelial cells 299  
 Keratan sulphate, rheumatoid arthritis 365  
 Keratin 206  
 Keratosis 199  
  
 Laminin, rheumatoid arthritis 367  
 Lazaroid U75412E, effect on lymphocyte function 162  
 Leucocyte adhesion molecule-1 357  
 Leucocyte adhesion receptor 269  
 Leukotriene B<sub>4</sub>, rheumatoid arthritis 421  
 Limb-girdle dystrophy 183  
 Lipid, interacting skin-penetration enhancers 227  
 Lipid bilayers, skin 201  
 Lipid hydroperoxides, DNA damage 144  
 Lipid peroxidation, rheumatoid arthritis 375  
 Lipocortin 430  
 Lipofuscin 126  
 Lipopolysaccharide, stimulation of superoxide generation by lymphocytes 89  
 Lipoxigenase 420  
   inhibitors 421  
 Lung  
   cystic fibrosis 5, 18  
   immune complex induced vasculitis 170  
 Lymphocyte function associated molecule-3 355  
   rheumatoid arthritis 358  
 Lymphocytes  
   effect of antioxidant drugs on function 161  
   DNA damage in single cells 129  
   endothelial cell adhesion 299  
   effect of hydrogen peroxide on receptor function 149  
   oxygen radical production 87  
  
 $\alpha 2$  Macroglobulin 370  
 Macrophages, derived cytokine synthesis 403  
 Manoalide 432  
 Metalloprotease gene expression 441  
 Metalloproteases  
   rheumatoid arthritis 368, 423  
   tissue inhibitor 370  
 MHC class I, role in viral infection 270, 306  
 MK-886 422  
 Molecular diagnostics, Duchenne/Becker dystrophies 185  
 Molecular modelling 285  
 Monoclonal antibodies  
   arthritis treatment 419  
   CD4 257  
   free radical-induced DNA damage 98  
   H<sub>2</sub>O<sub>2</sub> effect on binding to T cell surface antigens 152  
 Mucin secretion, cystic fibrosis 41, 45  
  
 Multidrug resistance genes 49  
 Muscular dystrophies 175  
 Myoblast therapy, Duchenne muscular dystrophy 179  
 NADPH oxidase  
   in lymphocytes 87  
   rheumatoid arthritis 422  
 Natural killer cells, rheumatoid arthritis 418  
 Natural moisturizing factor 217  
 Neuropeptides, synovitis 359  
 Neuropeptide Y, in synovial joints 360, 361  
 Neurotransmitters, synovial 360  
 Neutrophils, role of toxic oxygen products from 171  
 NF- $\kappa$ B 442, 443  
 Nucleoid, free radical damage within single cells 129  
  
 OKT9 151  
 Oleic acid, skin penetration enhancer 222, 230  
 Oligonucleotides, antiviral activity 323  
 Oncogenes  
   angiogenesis 301  
   Kaposi's sarcoma 300, 301  
 Osteoarthritis 423  
 Osteocalcin 445  
 Oxidants, mechanisms of cell injury 137  
 Oxidative phosphorylation, oxidant effects 141  
 Oxygen radical  
   production by lymphocytes 87  
   protein damage 124  
   rheumatoid arthritis 372  
   systemic lupus erythematosus 93  
  
 P388D1 cells, effect of oxidants 137  
 p56<sup>lck</sup> 438  
 Pancreas, cystic fibrosis 5, 17  
 Pansorbin  
   IgG reactivity 111  
   stimulation of superoxide generation by lymphocytes 89  
 Paraoxonase, cystic fibrosis 9  
 Passive immunization 322  
 D-Penicillamine 398  
 Pentoxifylline 408  
 Peptide T 323  
 Peptidyl-prolyl-*cis-trans*-isomerase 416  
 P-glycoproteins, CFTR 49  
 Phonophoresis 217  
 Phorbol myristate acetate, stimulation of superoxide generation by lymphocytes 88  
 Phosphinic acids, antiviral activity 335  
 Phospholipase A2  
   inflammatory role 430  
   inhibitors 431  
 Phospholipase C, phosphoinositide-specific 429  
 Plasmin, metalloprotease activation 424  
 Plasminogen activator, rheumatoid joints 372, 424  
 Platelet activating factor receptors, immune complex and vasculitis 169

- Platelet-activation-dependent granule-external membrane protein 357
- Platelet-derived growth factor
  - Kaposi's sarcoma 301
  - rheumatoid arthritis 353, 439
- Platelet glycoprotein IIb/IIIa 357
- Prednisolone 348
- Prodrug absorption through skin 214
- Programmed cell death, rheumatoid arthritis 376
- Propylene glycol, skin penetration enhancer 232
- Protein
  - free radical damage, role in immune response 121
  - interacting skin penetration enhancers 229
  - secretion 26, 30
- Proteinase inhibitors, HIV 329-340
- Protein kinase A, epithelial cell secretion 37
- Protein kinase C
  - epithelial cell secretion 38
  - inhibitors 437
  - role in inflammation 436
- Protein kinases, role in inflammation 435
- Protein phosphorylation, cystic fibrosis cells 45
- Protein replacement therapy, cystic fibrosis 63
- Proteoglycans, rheumatoid arthritis 365
- Proteolytic enzymes, rheumatoid arthritis 368
  
- Rapamycin 416
- Reactive oxygen species
  - effect on IgG function 107
  - induced DNA damage 94
- Respiratory epithelia, ion transport, cystic fibrosis 42
- Reticulum fibres 367
- Retinoic acid receptor 445
- Reverse transcriptase
  - inhibitors 316
  - virus concentration 314, 315
- RG5901 422
- RG59022 434
- Rheumatoid arthritis
  - adhesion molecules 354, 413
  - antigen presentation 411
  - arachidonic acid metabolites 420
  - CD4+ cells 417
  - cell-cell interactions 347, 400
  - cytokines 348, 401
  - effector cells 418
  - effector enzymes 429
  - extracellular matrix 362
  - free radicals and programmed cell death 372
  - glycoproteins 365
  - glycosaminoglycans 364
  - G proteins 428
  - growth factors 348, 439
  - IgG dysfunction 107
  - lymphocyte function 149
  - metalloproteases 368, 423
  - molecular basis of therapy 395-473
  - monoclonal antibodies 419
  - NADPH oxidase 422
  - neuroendocrine mechanisms 359
  - pathogenesis 344
  - protein kinases 435
  - proteolytic enzymes 368
  - signal transduction 428
  - T-helper targets 413
  - transcriptional control 440
- Rheumatoid factors 108, 418
  - effect of ROS on IgG binding 113
- Ribavirin 321
- Ro 20-1724 434
- Rolipram 434
- Romazarit 408, 409
  
- Salivary glands
  - cystic fibrosis 17
  - regulation 31, 41
- Sebaceous glands 198
- Second messenger, cell activation 31, 32
- Secretory proteins 26, 30
- Selectins 357
- Signal transduction
  - arachidonate levels 433
  - CD4 256
  - effector enzymes 429
  - G proteins 428
  - phospholipase A2 430
  - protein kinases 435
- Simian immunodeficiency viruses
  - pathogenesis 250
  - relationship to HIVs 247
  - vaccine trials in macaques 251
- Single cell, free radical damage 129
- SKF 86002 406
- Skin
  - aqueous pores 206
  - drug delivery 209
  - drug penetration 200, 201
  - enhancement of drug absorption 214, 220
  - hydration 217
  - immune complex induced vasculitis 170
  - iontophoresis 218
  - permeation, diffusion 207
  - structure 196
  - topical treatments 198
  - transdermal route for systemic therapy 213
- Sodium, absorption 25
- Sodium chloride
  - secretion by epithelial cells 21
  - in sweat, cystic fibrosis 40
- Soluble CD4 271, 320
- Spindle cells, Kaposi's sarcoma 302
- Statine, anti-HIV activity 332
- Staurosporine
  - inhibition of protein kinase C 438
  - effect on superoxide generation by lymphocytes 90
- Steroids
  - absorption through skin 214
  - anti-inflammatory activity 444
- Stromelysin 370, 423, 425

- Submandibular acinar cells, secretion, cystic fibrosis 41
- Substance P, synovitis 359, 361
- Sulphated polysaccharides, antiviral activity 321
- Superoxide, production by lymphocytes 87
- Surface antigens, hydrogen peroxide and lymphocyte function 150, 152
- Sweat, electrolyte abnormalities in cystic fibrosis 40
- Sweat glands 198
- cystic fibrosis 17, 31, 42
- Syncytia 257
- Synovitis 344, 397
- Systemic lupus erythematosus, reactive oxygen species damage to DNA 93
- T-cells
- antigen-presenting cell interactions 412
  - antioxidant effects 161
  - CD4 272
  - cytokine activation 301
  - hydrogen peroxide and function 150
  - immunomodulation 414
- T-cell receptor
- AIDS pathogenesis 304, 305
  - p56<sup>lck</sup> 438
  - rheumatoid arthritis 412, 414
- T-cell receptor/CD3 355, 438
- Terpene, skin penetration enhancers 223, 229, 232
- Tissue inhibitor of metalloproteinase 370
- Transdermal drug delivery 209
- systemic therapy 213
- Transferrin/transferrin receptor interaction, effect of hydrogen peroxide 151
- Transforming growth factor- $\beta$
- angiogenesis 300
  - rheumatoid arthritis 353, 403
- Transgenics 417
- cystic fibrosis 57
- Transition metals, radical reactions 122
- Tropism, HIV 267-282
- Tumour necrosis factor $\alpha$
- AIDS 306
  - angiogenic factor 301
  - effect on endothelial cells 172
  - metalloproteinase expression 370
  - participation in immune complex induced injury 170
  - rheumatoid arthritis 350, 351, 402, 405
  - stimulation of superoxide production by lymphocytes 89
- Tyrosine-specific protein kinases, growth factor receptor 439
- Tyrphostins 439
- U75412E 162
- U-75875 334
- Ultrasound, drug absorption through skin 217
- Urea derivatives, skin penetration enhancers 222
- Vascular endothelium role in HIV infection and Kaposi's sarcoma 297-312
- Vasculitis, PAF receptors in immune complex 169
- VCAM-1 299
- Virus
- cell entry 267
  - chemotherapy 313
- Vitamin D3 receptor 445
- Vitronectin 367
- Vitronectin receptor 356
- WR 1065 133
- WY-48,989 408, 409
- Xanthine, endothelial cell killing by neutrophils 172
- Zidovudine 313, 316

